REMARKS/ARGUMENTS

In this Amendment, Applicants have cancelled previously pending independent claim 1 and added new independent claim 4 to further distinguish over Applicants' Admitted Prior Art (AAPA) in view of Takemori.

Applicants respectfully submit that even if AAPA can be combined with Takemori, that the combined references still do not disclose Applicants' claimed invention.

As will be discussed further below, Applicants respectfully submit that, contrary to the Examiner's argument, Takemori's element 22 cannot align three beam splits in essentially the same direction, as claimed by Applicants. With this beam splitter 22 of Figure 9 of Takemori, it is impossible to combine the three beams through lenses 19a, 19b and 19c.

The reason why, in Takemori, it is impossible to combine three beams through lenses 19a, 19b, and 19c by using beam splitter 22 is further explained below.

Firstly, Applicants respectfully explain a phenomena of birefringence on the theory of a polarizing type beam splitter.

As to birefringence, as explained in, for example, Wikipedia, birefringence, or double refraction, is the decomposition of a ray of light into two rays (the ordinary ray and the extraordinary ray) when it passes through certain types of material, such as calcite or boron nitride, depending on the polarization of the light. This effect can occur only if the structure of the material is anisotropic (directionally dependent). If the material has a single axis of anisotropy or optical axis, i.e., it is uniaxial, birefringence can be formalized by assigning two different refractive indices to the material for different polarizations. The birefringence magnitude is then defined by: $\Delta n = n_e - n_o$ where n_o and n_e are the refractive indices for polarizations perpendicular (ordinary) and parallel (extraordinary) to the axis of anisotropy respectively.

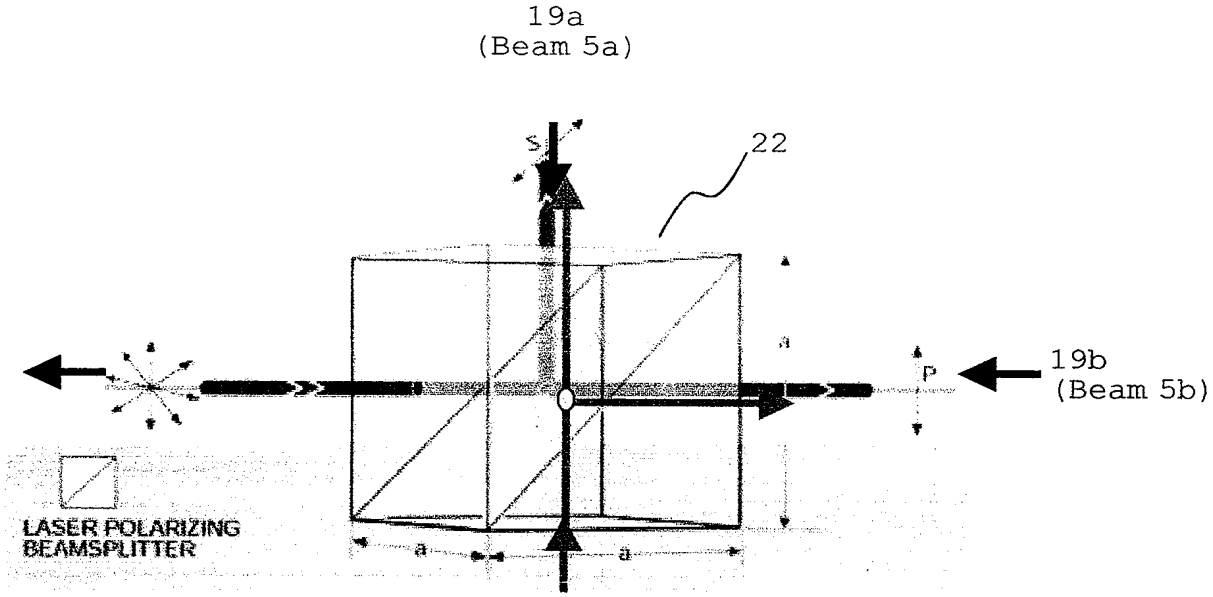
As to a Glan-Thompson prism, Wikipedia explains that a Glan-Thompson prism is a type of polarizing prism similar to a Nicol Prism. It consists of two

right-angled calcite prisms that are cemented together by their long faces. The optical axes of the calcite crystals are parallel and aligned perpendicular to the plane of reflection. Further, birefringence splits light entering the prism into two rays, experiencing different refractive indices; the p-polarized o-ray is totally internally reflected from the calcite-cement interface, leaving the s-polarized e-ray to be transmitted. The prism can therefore be used as a polarizing beam splitter. Traditionally Canada balsam was used as the cement in assembling these prisms.

Therefore, as indicated above, a polarizing type beam splitter reflects a polarized o-ray at the plane of interface using a difference of refractive indices of a birefringent material.

The drawing on the next page explains how these principles related to a polarizing beam splitter apply to the polarizing beam splitter 22 of Takemori and how the beam splitter 22 of Takemori functions with respect to the three incoming beams through lenses 19a, 19b, and 19c. As will be further explained below, at most only two beams can be combined in the same direction. Therefore, contrary to the Applicants' claimed invention, it is impossible to combine three beams in the same direction with the beam splitter 22 of Takemori and the beam paths of Takemori.

As can be seen in the drawing on the next page, in the case of beam 5a (from lens 19a), which enters the beam splitter from the polarization direction (direction P in the drawing), this beam reflects to the left (in the direction of the beam expander 23 in Figure 9 of Takemori). The beam 5b (from lens 19b) transmits through the beam splitter. As can be further seen, the interface of the polarizing beam splitter 22 declines as indicated, and when the beam through lens 19c enters the polarizing splitter 22 in the same direction of polarization as beam 5a, the beam from 19c either transmits towards lens 19a or reflects to the right to lens 19b. It cannot reflect to the same direction as beam 5a. These similarly polarized beams 5a and 19c, entering from different directions, cannot reflect in the same direction.



19c

Therefore, the three beams in Takemori cannot be combined in the same direction as claimed by Applicants. In Applicants' invention, a method for making three beams incident on one machining lens is claimed so as to further improve the machining speed while reducing the price of the apparatus. Applicants respectfully submit that Takemori cannot disclose combining the three beams in the same direction, as discussed above, regardless of how any particular shutter(s) may be operated, as argued by the Examiner in the Advisory Action mailed on August 20, 2007. Applicants respectfully submit that even if shutters were operated in a manner to permit the three beams to be incident on the polarizing splitter 22 of Takemori at a same time, as discussed above, the optical principles of the polarizing splitter still do not permit combining the three incident beams in the same direction, as claimed by Applicants.

Applicants respectfully submit that this inability of the beam splitter 22 of Takemori to combine three laser beam splits is not a problem in Takemori, and in fact, is fully consistent with the purpose of Takemori. In Takemori there is only a need to combine two beams. The method and apparatus is directed only to making side walls for a tracking groove in a magneto-optical disk. Polarizing prism 22 merely synthesizes light beams 5a, 5b. Light beams 5a and 5b are used to form the groove. Light beam 5a forms one side of the groove and light beam 5b forms the other side of the groove. If both sides are to be formed with a wobble (See Fig. 2(a), two-sided wobble groove 1), both of light beams 5a and 5b are oscillated. If only one of the sides are to be formed with a wobble (See Fig. 3(a), one-sided wobble groove 2), only one of the light beams is oscillated. Even in the embodiment of Figure 9, the apparatus and method still only makes two side walls for the tracking groove. Whereas Figure 9 discloses three light beams 5a, 5b, and 73, this embodiment still only uses two of the three beams for forming the grooves. If a two-sided wobble groove is desired, light beams 5a and 5b are used and "the light beam 73 is blocked." If a one-sided wobble groove is desired, light beams 5b and 73 are used and "the light beam 5a is blocked." Col. 10, lines 59-67 and Col. 11, lines 9-18. As such, there is absolutely no disclosure in Takemori for ever aligning beams 5a and 19c in the same direction, and as discussed above, Takemori cannot operate in this manner. Therefore, even in an embodiment of Takemori where three light beams are disclosed, there is no disclosure in Takemori for ever making the three light beams incident on the polarizing prism 22 at any one time, and even if they can be made incident on the prism 22 at the same time by operating shutters as argued by the Examiner, these three incident beams still cannot be aligned in the same direction by the prism 22. As explained by Applicants above, Applicants respectfully submit that by using the polarizing prism 22 of Figure 9 of Takemori, it is impossible to combine three beams in a same direction coming though lenses 19a, 19b, and 19c.

The only possible way in Takemori for the three beams to be aligned in the same direction is for the beams 5a and 19c to have different polarizations. However, there is no disclosure in Takemori for this and, as explained above, there would be no motivation to modify Takemori to operate in this manner because Takemori only, at most, requires two beams to be aligned in the same direction to form the two sides of the groove. However, to even more-particularly claim Applicants' invention, Applicants further claim that the two beams that are aligned on the same optical path (see beams A and B in Figure 1 out of combining means 31c) have a same polarization state. These two aligned same polarization beams A and B are then combined with the beam C entering polarizing combining means 32 (Figure 1) and the three beams A, B, and C are thus aligned in the same direction. Applicants respectfully submit that the features of new claim 4 related to polarization states are clearly disclosed in Applicants' specification at least at para. 0035. Therefore, if Takemori is to be argued to disclose this feature where two beams aligned on the same optical path (beams 5a and 19c) have the same polarization, then, as discussed above, they cannot be aligned in the same direction by prism 22. The reason Applicants' invention can combine the similarly polarized beams A and B with C is because, as further claimed by Applicants, the beams A and B are aligned in the same direction by beam combining means 31c before they are incident on polarizing combining means 32 such that they are incident on the combining means 32 from the same direction. In Takemori, the beams 5a and 19c are incident on prism 22 from different directions, and thus, are reflected in different directions.

Applicants have also added new dependent claim 5 to the application. Applicants respectfully submit that the subject matter of dependent claim 5 is clearly disclosed in Applicants' specification at least at paras. 0061 and 0062.

Applicants respectfully submit that the application is in condition for allowance with claims 2-5 being allowable. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of

the application for all concerned. Applicants are filing a Request for Continued Examination concurrent with the filing of this Amendment.

As provided for above, this Paper should be considered as a Petition for an Extension of Time sufficient to effect a timely response. Please charge any deficiency in fees, or credit any overpayment of fees, to Deposit Account No. 05-1323 (Docket No. 029116.53329US).

Respectfully submitted,

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